

USER

No 5

ZX Spectrum

● Track down golden nuggets and improve your maths: Two great Spectrum programs to type in.

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BISMARCK



48K ZX SPECTRUM
FACTORY
BREAKOUT



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CONNECTIONS

Welcome to the fifth issue of ZX User. This is your bonus extra for all Spectrum owner — an additional 16-page supplement devoted entirely to the Spectrum.

We're interested in your points of view. Send your comments and observations to us — and don't forget your listings and tips.

This week you'll find a game

featuring a miserly vicar whose lust for gold takes him in search of gold bars.

There's also a space game in which you face force fields, asteroids and aliens and a listing for both ZX81 and Spectrum to help you get your maths in shape.

We hope you enjoy this week's issue. Happy reading!

You can get into print

WE WELCOME programs and articles from our readers. If you feel that your work meets our standards, please submit it to us for consideration for publication.

Programs must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include full details of what your program does, how it works, variables you have

used and hints on conversion. See the programs in this issue for guidance on what your paperwork should include.

Articles on using the Spectrum and the ZX81 should be no longer than 2,000 words. Those most likely to be published will help our readers make better use of their computers by giving useful advice, possibly with programming examples, tables and so on. Short hints are also welcome.

All submissions will be acknowledged and the copyright in such works which will pass to Argus Specialist Publications Ltd will be paid for at competitive rates.

Keep a copy of your work and include an SAE. Label everything clearly and give a daytime and home phone number if you can. All work for consideration should be sent to:

Paul Liptrot, ZX User, No. 1 Golden Square, London W1R 3AB

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Rave reviews greet this cluster of solid gold releases

The Mean, Miserly Man of God



Here's a novel game for you. In this game you are George the vicar. Your mission is to collect five gold bars (the love of money is the root of all evil, George, so beware!) from any one of 30 rooms.

Your behaviour is obviously not being condoned by the Almighty, as you have 10 different hostile beings to cope with. Each appears three times, so you should really learn your lesson and go back to tending your flock.

If the aliens trap you three times, the game is over and a rendition of Chitty Chitty Bang Bang (how appropriate?) is played while you decide whether you want to take up the challenge again.

If you complete your task, a congratulatory message appears on screen accompanied by machine code sound. You will also hear machine code sound when you pass away and move on to pastures new, and when you find an object.

The routine in the program is not used to its full extent and some great sound effects can be found by POKEing the two values shown in the program.

This game runs on both the 16 and 48K Spectrum. To help you find your way through the listing there are numerous REM statements describing the function of each routine. The listing will only run on the 16K Spectrum if all REM lines are omitted.

On screen you will see the outline of a room with doors, which are the exits. You will also see a randomly moving alien, your character and possibly a gold bar. Pick up

the gold bars by walking into them.

These are your controls: Q up, A down, O left, P right.

Well, Vicar, you're straying from the straight and narrow, and you know it will only lead to destruction — but good luck, anyway!

Variables

a\$(i) data for exits from each room
 room which room you are in (1 to 30)
 v(i) tell computer which rooms should have a gold bar in them
 x,y co-ordinates of character
 a,b co-ordinates of enemy
 r(i) number of data line for each alien
 a(), c() musical notes

Here's a great original game for you — you'll love this one. You're the Vicar with the lust for gold. Track down those nuggets in this top quality game from Andrew Sanders

How it works

20-590 movement of man and alien routines
 600-620 sounds at death
 700-730 when a bar has been

collected, delete from array v()
 1000-1200 construct room
 8000-8225 data for various aliens
 9000-9050 define UDGs
 9100-9190 maze data, tune

data, restore line data
 9200-9290 initialise, call other routines, set locations of bars
 9300-9340 update lives
 9400-9450 routine after dying
 9500-9540 machine code sound routine
 9600-9640 routine when game is complete

```

0>REM Program by Sanders and Charnock1984
2 REM lines 20 to 390 are character movement routines
5 GO SUB 9200
15 PRINT INK ink;AT a,b;"T.M"
20 PRINT INK 7; BRIGHT 1;AT x,y;"I";AT x+1,y;"J"
25 LET z$=INKEY$
28 IF z$="" THEN GO TO 500
30 IF z$="O" THEN GO TO 200
40 IF z$="A" THEN GO TO 250
50 IF z$="Q" THEN GO TO 300
60 IF z$="P" THEN GO TO 350
70 GO TO 20
200 IF ATTR (x,y-1)=7 AND ATTR (x+1,y-1)=7 THEN LET y=y-1: GO SUB 400: GO TO 500
210 IF y=3 THEN LET x=10: LET y=28: LET room=room-1: BEEP .01,0: GO SUB 1000: LET k=1: GO TO 500
212 IF ATTR (x,y-1)=ink OR ATTR (x+1,y-1)=ink THEN GO SUB 600: CLS : GO TO 9300
215 IF ATTR (x,y-1)=6 OR ATTR (x+1,y-1)=6 THEN LET obj=obj+1: GO SUB 700: LET y=y-1: GO SUB 400: GO TO 500
230 GO TO 500
250 IF ATTR (x+2,y)=7 THEN LET x=x+1: GO SUB 420: GO TO 500
260 IF x=18 THEN LET x=2: LET y=15: LET room=room+6: BEEP .01,0: GO SUB 1000: LET k=1: GO TO 500
262 IF ATTR (x+2,y)=ink THEN GO SUB 600: CLS : GO TO 9300
265 IF ATTR (x+2,y)=6 THEN LET obj=obj+1: GO SUB 700: LET x=x+1: GO SUB 420: GO TO 500
280 GO TO 500
300 IF ATTR (x-1,y)=7 THEN LET x=x-1: GO SUB 440: GO TO 500
310 IF x=2 THEN LET x=18: LET y=15: LET room=room-6: BEEP .01,0: GO SUB 1000: LET k=1: GO TO 500
312 IF ATTR (x-1,y)=ink THEN GO SUB 600: CLS : GO TO 9300
315 IF ATTR (x-1,y)=6 THEN LET obj=obj+1: LET x=x-1: GO SUB 700: GO SUB 440: GO TO 500
340 GO TO 500
350 IF ATTR (x,y+1)=7 AND ATTR (x+1,y+1)=7 THEN LET y=y+1: GO SUB 460: GO TO 500
360 IF y=28 THEN LET x=10: LET y=3: LET room=room+1: BEEP .01,0: GO SUB 1000: LET k=1: GO TO 500
362 IF ATTR (x,y+1)=ink OR ATTR (x+1,y+1)=ink THEN GO SUB 600: CLS : GO TO 9300
365 IF ATTR (x,y+1)=6 OR ATTR (x+1,y+1)=6 THEN LET obj=obj+1: LET y=y+1: GO SUB 700: GO SUB 460: GO TO 500
390 GO TO 500
400 REM delete man routines
405 PRINT INK 7; BRIGHT 1;AT x,y;"I"; INK 7; BRIGHT 0;AT x,y+1;" "; INK 7; BRIGHT 1;AT x+1,y;"J"; INK 7; BRIGHT 0;AT x+1,y+1;" ": GO TO 500
410 RETURN
  
```


SPECTRUM PROGRAM

```

420 PRINT INK 7; BRIGHT 0; AT x-1,y; " "; INK 7; BRIGHT 1; AT x,y; " "; AT x+1,y; "
": BRIGHT 0
430 RETURN
440 PRINT INK 7; BRIGHT 0; AT x+2,y; " "; INK 7; BRIGHT 1; AT x+1,y; " "; AT x,y; "
": BRIGHT 0
450 RETURN
460 PRINT INK 7; BRIGHT 0; AT x,y-1; " "; INK 7; BRIGHT 1; AT x,y; " "; INK 7; BR
I
GHT 0; AT x+1,y-1; " "; INK 7; BRIGHT 1; AT x+1,y; " "; BRIGHT 0
470 RETURN
500 REM alien movement
505 LET ti=ti+1
510 FOR r=1 TO 2
520 LET v=INT (RND*4)+1
522 IF v=1 AND ATTR (a-1,b)=7 AND ATTR (a-1,b+1)=7 THEN LET a=a-1: PRINT INK
7; AT a+1,b; " "; INK ink; AT a,b; "TU": NEXT r
525 IF v=1 AND ATTR (a-1,b)=71 OR ATTR (a-1,b+1)=71 THEN GO SUB 600: CLS : GO
TO 9300
533 IF v=2 AND ATTR (a+1,b)=7 AND ATTR (a+1,b+1)=7 THEN LET a=a+1: PRINT INK
7; AT a-1,b; " "; INK ink; AT a,b; "TU": NEXT r
535 IF v=2 AND ATTR (a+1,b)=71 OR ATTR (a+1,b+1)=71 THEN GO SUB 600: CLS : GO
TO 9300
544 IF v=3 AND ATTR (a,b+2)=7 THEN LET b=b+1: PRINT INK 7; AT a,b-1; " "; INK
ink; AT a,b; "TU": NEXT r
545 IF v=3 AND ATTR (a,b+2)=71 THEN GO SUB 600: CLS : GO TO 9300
552 IF v=4 AND ATTR (a,b-1)=7 THEN LET b=b-1: PRINT INK 7; AT a,b+1; " "; INK
ink; AT a,b; "TU": NEXT r
555 IF v=4 AND ATTR (a,b-1)=71 THEN GO SUB 600: CLS : GO TO 9300
570 NEXT r
580 IF k=1 THEN LET k=0: GO TO 20
590 GO TO 25
600 REM death sound
610 POKE 42501,1: POKE 42504,25: FOR t=1 TO 6: RANDOMIZE USR 42500: NEXT t
620 RETURN
700 REM check
710 FOR e=1 TO 5: IF v(e)=room THEN LET v(e)=0
720 NEXT e
725 POKE 42501,50: POKE 42504,125: POKE 42507,40: RANDOMIZE USR 42500
727 IF obj=5 THEN GO TO 9600
730 RETURN
1000 REM draw room
1005 BORDER 0: PAPER 0: INK 7: CLS
1006 INK 4
1010 PLOT 15,169: DRAW 0,-162: DRAW 226,0: DRAW 0,162: DRAW -226,0
1020 PLOT 15,169: DRAW 26,-26: DRAW 0,-111: DRAW 174,0: DRAW 0,111: DRAW -174,0
1030 PLOT 41,33: DRAW -26,-26
1040 PLOT 215,33: DRAW 26,-26
1050 PLOT 215,143: DRAW 26,26
1060 INK 7
1080 FOR s=1 TO 4
1090 IF a$(room,s)="1" THEN PRINT INK 4; PAPER 0; AT 1,14; "E"; AT 2,14; "O";
AT
2,17; "O"; AT 3,14; "E"; AT 3,17; "O": PLOT OVER 1;120,43: DRAW OVER 1;15,0
1100 IF a$(room,s)="2" THEN PRINT INK 4; PAPER 0; AT 9,27; "E"; AT 10,29; "O";
AT
11,29; "O"; AT 12,27; "E"; PLOT OVER 1;215,95: DRAW OVER 1;0,-15
1110 IF a$(room,s)="3" THEN PRINT INK 4; PAPER 0; AT 18,14; "E"; AT 18,17; "O"; AT
19,14; "O"; AT 19,17; "E"; AT 20,14; "E"; PLOT OVER 1;135,32: DRAW OVER 1;-15,
0
1120 IF a$(room,s)="4" THEN PRINT INK 4; PAPER 0; AT 9,2; "E"; AT 10,2; "O"; AT
1
1,2; "E"; AT 12,2; "E"; PLOT OVER 1;41,80: DRAW OVER 1;0,15
1130 NEXT s
1140 RESTORE r(room)
1150 FOR e=USR "t" TO USR "u"+7: READ a: POKE e,a: NEXT e
1160 LET ink=INT (RND*5)+1
1170 IF ink=4 THEN GO TO 1160
1180 FOR e=1 TO 5: IF v(e)=room THEN PRINT INK 6; AT 14,14; " "
1185 LET a=10: LET b=20
1190 NEXT e
1200 RETURN

```

```

8000 DATA 0,0,0,14,63,113,192,128,0,0,0,6,141,255,246,0
8025 DATA 112,137,139,79,47,31,15,7,3,135,238,252,252,248,248,224
8050 DATA 15,16,39,67,72,39,16,15,240,8,116,50,2,196,8,240
8075 DATA 0,127,128,190,189,65,63,31,0,1,130,132,26,255,254,252
8100 DATA 3,715,15,15,15,7,3,192,224,240,240,240,240,224,192
8125 DATA 11,12,4,7,107,217,128,0,216,48,32,224,214,155,1,0
8150 DATA 7,7,247,185,247,223,247,82,255,255,255,255,255,255,134
8175 DATA 0,255,0,255,0,255,0,255,255,0,255,0,255,0,255,0
8200 DATA 0,0,0,15,255,15,0,0,0,0,1,227,255,227,1,0
8225 DATA 7,14,12,15,31,37,73,219,224,96,32,224,248,164,146,219
9000 REM define graphics
9010 RESTORE 9020: FOR g=USR "a" TO USR "k"+7: READ a: POKE g,a: NEXT g
9020 DATA 47,33,61,33,47,33,61,33,0,0,255,68,85,85,17,255,132,188,132,244,132,18
8,132,244,255,136,170,170,34,255,0,0,0,0,7,8,19,36,41,42,0,0,240,8,200,36,148,84
,84,148,36,200,16,224,0,0,42,41,36,19,8,7,0,0
9030 DATA 60,255,66,66,66,60,255,181,187,181,175,207,126,68,68,198
9040 DATA 0,0,0,255,255,255,129,255
9050 RETURN
9100 REM array of maze
9101 REM a$ denotes exits
9102 REM r denotes subroutines
9110 DIM v(5): DIM a(34): DIM c(34): DIM a$(30,4): DIM r(30)
9120 RESTORE 9130: FOR e=1 TO 30: READ a$(e): NEXT e
9130 DATA "23","234","4","23","234","34","13","12","234","134","1","13","123","4
","12","1234","4","13","123","34","3","13","3","13","1","12","14","12","124","14
"
9135 LET pos=8000
9140 FOR e=1 TO 30: LET r(e)=pos: LET pos=pos+25: IF pos=8250 THEN LET pos=8000
9150 NEXT e
9160 RESTORE 9170: LET aa=.125: LET bb=.25: LET cc=.5: LET dd=5: LET ee=7: FOR e
=1 TO 34: READ a(e),c(e): NEXT e
9170 DATA cc,ee,cc,ee,aa,ee,aa,ee,aa,ee,aa,ee,bb,ee,bb,2,aa,ee,aa,ee,aa,ee,aa,ee
,bb,9,bb,ee,bb,ee,bb,dd,cc,dd,cc,9,cc,dd,aa,dd,aa,dd,aa,dd,aa,dd,bb,dd,bb,2,aa,d
d,aa,dd,aa,dd,aa,dd,bb,dd,bb,2,bb,4,bb,dd,1,ee
9190 RETURN
9200 REM initialise
9205 GO SUB 9500
9210 POKE 23658,8
9220 GO SUB 9000
9230 GO SUB 9100
9240 LET ti=0: LET obj=0: LET t=0: LET in=5: LET room=16: LET lives=3
9242 FOR e=1 TO 5
9245 LET v(e)=INT (RND*30)+1: FOR c=1 TO e-1: IF v(e)=v(c) THEN GO TO 9245
9247 NEXT c
9248 NEXT e
9250 GO SUB 1000
9260 LET x=10: LET y=10
9290 RETURN
9300 REM update lives
9310 LET lives=lives-1
9320 IF lives=0 THEN GO TO 9400
9330 LET x=10: LET y=10: GO SUB 1000
9340 GO TO 20
9400 REM new game
9410 CLS : PRINT AT 10,5;"Press '5' for a new game":AT 14,5;"You collected ";obj
;" objects":AT 16,5;"You lasted ";ti;" time units"
9420 FOR e=1 TO 34: BEEP a(e),c(e): IF CODE INKEY$=83 THEN RUN
9430 NEXT e
9450 GO TO 9420
9500 REM mc sound
9520 RESTORE 9530: FOR q=42500 TO 42520: READ w: POKE q,w: NEXT q
9530 DATA 33,50,0,17,125,0,6,40,229,213,197,205,181,3,193,209,225,35,16,244,201
9540 RETURN
9600 REM game completed
9604 CLS : PRINT AT 4,2;"Congratulations you have been":AT 6,2;"saved from an aw
ful fate by":AT 8,2;"collecting the five gold bars.":AT 10,2;"You took ";ti;" ti
me units":AT 16,10;"WELL DONE": PAUSE 0
9605 PRINT AT 12,7;"Press any key"
9610 POKE 42501,45: POKE 42504,5: POKE 42507,100
9620 RANDOMIZE USR 42500
9630 IF INKEY$<>" " THEN GO TO 9400
9640 GO TO 9620

```


Get your maths in shape

Use your computer to help you with your maths homework. All you have to do is specify a mathematical function and the computer will draw on screen what the function looks like, whether it's a parabola, straight line, or whatever.

Up to six functions may be shown on screen at any one time. Please note that you cannot input x^2 for both

These programs are for the ZX81 and Spectrum. Now, over to you to let your imagination show you how to make the best use of this utility.

Variables

- X\$ x of oy
- y\$ y of ox
- B draw the axes
- u number of functions you can input (six)
- I\$ function
- X all abscissae (-00 + 00)
- G y on screen depending on position of axes and the function I\$ (f(x))
- U x on screen depending on position of axes and x
- Q,W co-ordinates of =

How it works ZX81

- 2-33 draw screen, position axes co-ordinates
- 40-51 variable x\$, abscissa of oy axis, variable y\$, ordinate of ox axis
- 53 delete all co-ordinates from lines 32-33 and where y of ox was written
- 54-58 draw axes
- 90-100 possible functions on screen
- 100-110 I\$ function
- 111-121 delete previous data to enable other functions to be input
- 130 print function
- 140 possible abscissa between -20 and 20
- 145-148 G = y on screen, V = x on screen
- 150 screen limits
- 160-170 draw curve
- 171-172 options
- 180-191 choose option
- 200 press K to input another function
- 300-301 press P to restart
- 400 press R to print cursor at 20,19

ZX81 listing

```

2 PRINT AT 0,0; "
10 FOR A=1 TO 20
20 PRINT AT A,0; "
30 NEXT A
31 PRINT AT 21,0; "
32 PRINT AT 9,10; "0"; AT 1,10; "
9"; AT 20,10; "-9"
33 PRINT AT 10,10; "+0"; AT 10,1
; "-9"; AT 10,19; "11"
40 PRINT AT 18,22; "X DE(OY)?"
41 INPUT X$
50 PRINT AT 18,22; "Y DE(OX)?"
51 INPUT Y$
53 PRINT AT 9,10; " "; AT 1,10; "
"; AT 20,10; " "; AT 10,10; " "
; AT 10,1; " "; AT 10,19; " "; AT
18,22; "
54 FOR B=1 TO 20
55 PRINT AT 10-VAL Y$,B; "."

```

```

56 PRINT AT B,10+VAL X$; "."
57 NEXT B
58 PRINT AT 10-VAL Y$,0; " "; AT
10-VAL Y$,21; " "; AT 0,10+VAL X$
; " "; AT 21,10+VAL X$; " "
60 REM -----

90 FOR U=4 TO 10
100 PRINT AT 2,22; "F(X)=?"
110 INPUT I$
111 PRINT AT 18,24; "
120 PRINT AT 19,24; "
121 PRINT AT 20,24; "
130 PRINT AT U,22; I$; AT 2,22; "
(X)=?"
135 REM -----

140 FOR X=-20 TO 20
145 LET G=20-VAL I$-VAL Y$-10
146 LET V=X+VAL X$+10
150 IF G<1 OR G>20 OR V<1 OR V>
20 THEN GOTO 170

```


410-450 control cursor
 510-520 press 0 to print co-ordinates of point on axes
 540 return to menu

Spectrum

The program is mostly the same as for the ZX81, except for some improvements

1 go to 9000 to set up UDG
 3-50 set screen
 60-90 input function (up to 10) and ink

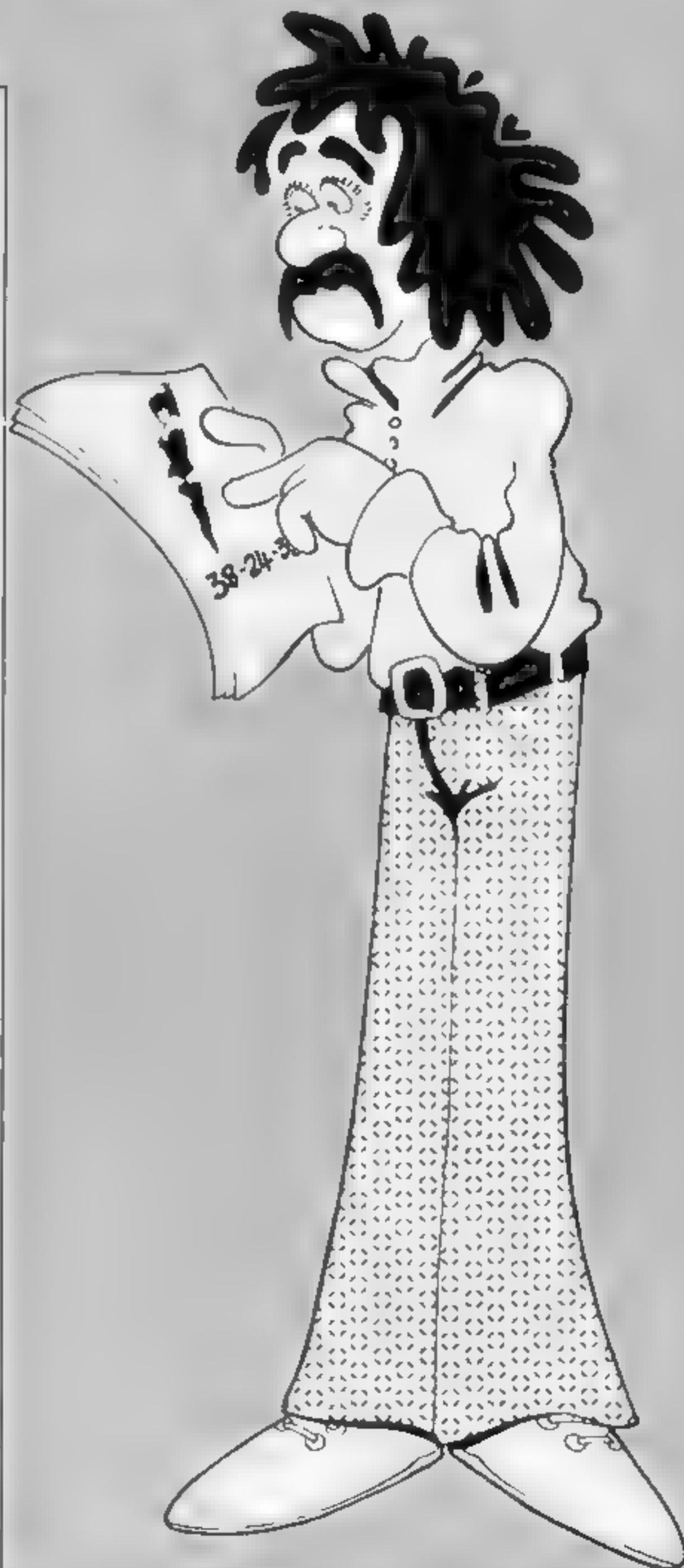
110-160 draw curve. If curve 8,5 or 16,7 then next x
 170-310 options: to draw more curves on same screen; to find co-ordinates of one point; to quit present screen
 400-540 move cursor up, down, left and right, when 0 is pressed, co-ordinates appear on axes
 9000-9080 UDG

If you've always been abysmal at maths, don't despair — these programs by Guillaume Thibaudeau could give you a helping hand and restore your flagging interest

```

160 PRINT AT G,V; "+"
170 NEXT X
171 PRINT AT 19,24; "PLUS="+; AT
18,24; "<==R"
172 PRINT AT 20,24; "RUN=P"
180 IF INKEY$="K" THEN GOTO 200
181 IF INKEY$="R" THEN GOTO 400
190 IF INKEY$="P" THEN GOTO 300
191 GOTO 180
200 NEXT U
300 CLS
301 RUN
400 LET Q=20
401 LET W=19
410 IF INKEY$="5" THEN LET W=W-
1
411 IF INKEY$="5" THEN PRINT AT
Q,W+1; " "
420 IF INKEY$="6" THEN LET Q=Q+
1
421 IF INKEY$="6" THEN PRINT AT
Q-1,W; " "
430 IF INKEY$="7" THEN LET Q=Q-
1
431 IF INKEY$="7" THEN PRINT AT
Q+1,W; " "
432 IF INKEY$="0" THEN GOTO 510
440 IF INKEY$="8" THEN LET W=W+
1
441 IF INKEY$="8" THEN PRINT AT
Q,W-1; " "
442 IF Q<1 THEN LET Q=1
443 IF W>19 THEN LET W=19
444 IF W<1 THEN LET W=1
449 IF Q>20 THEN LET Q=20
450 PRINT AT Q,W; "<="
500 GOTO 410
510 PRINT AT Q,10+VAL X$;ABS (1
0-VAL Y$-Q)
511 LET O=ABS (-VAL X$+W-11)
520 PRINT AT 10-VAL Y$,W-1;O;AT
Q,W; " ";AT Q,W-1; "0"
540 GOTO 171

```



Spectrum listing 1

```

1 GO SUB 9000
3 LET a$=""
4 LET b$=""
5 PRINT AT 0,0;a$: FOR a=1 TO 20: PRINT AT a,0;b$: NEXT a: PRINT AT 21,0;a$
10 PRINT AT 10,10;"0";AT 1,10;"9";AT 20,10;"-9";AT 10,1;"-9";AT 10,19;"11"
20 PRINT AT 18,22;"x of (oy)?": INPUT x$: PRINT AT 18,22;"y of (ox)?": INPUT y
$
30 PRINT AT 1,10;" ";AT 20,10;" ";AT 10,10;" ";AT 10,1;" ";AT 10,19;"
" ";AT 18,22;" "
40 FOR b=7 TO 167: PLOT b,8.5*(10+VAL y$): PLOT 8.5*(10+VAL x$),b: NEXT b
50 PRINT AT 11-VAL y$,0;"-";AT 10-VAL y$,21;"+";AT 0,10+VAL x$;"+";AT 21,10+VA
L x$;"-"
55 REM -----
60 FOR u=4 TO 10
65 IF u=10 THEN PRINT "sorry,that's too much"
66 STOP
70 PRINT AT 2,22;"F(x)=?": INPUT i$
72 INPUT "ink? (0->6)";ink
75 IF ink<0 OR ink>6 THEN GO TO 72
80 PRINT AT 18,24;" ";AT 19,24;" ";AT 20,24;" "
90 PRINT AT 2,27;" ";AT u,22; INK ink;i$
100 REM -----
110 FOR x=-167 TO 167
120 LET g=8.5*(VAL i$)/8.5+(VAL y$+10)*8.5
130 LET v=8.5*(x)/8.5+(10+VAL x$)*8.5
140 IF g<8.5 OR g>167 OR v<8.5 OR v>167 THEN GO TO 160
150 INK ink: PLOT v,g
160 NEXT x
170 INK 0: PRINT AT 19,24;"more=m";AT 18,24;"<=r";AT 20,24;"exit=p"
180 IF INKEY$="m" THEN GO TO 200
183 IF INKEY$="r" THEN GO TO 400
185 IF INKEY$="p" THEN GO TO 300
195 GO TO 180
200 NEXT u
300 CLS
310 RUN
400 LET q=20: LET w=19
410 IF INKEY$="5" THEN LET w=w-.1: PRINT AT q,w+1;" "
420 IF INKEY$="6" THEN LET q=q+.1: PRINT AT q-1,w;" "
430 IF INKEY$="7" THEN LET q=q-.1: PRINT AT q+1,w;" "
432 IF INKEY$="0" THEN GO TO 510
440 IF INKEY$="8" THEN LET w=w+.1: PRINT AT q,w-1;" "
450 IF q<1 THEN LET q=1: IF w>19 THEN LET w=19: IF w<1 THEN LET w=1: IF q>20 TH
EN LET q=20
460 PRINT AT q,w;"<="
500 GO TO 410
510 PRINT AT q,10+VAL x$;INT ABS (10-VAL y$-q)
520 PRINT AT 10-VAL y$,w-1;INT ABS (-VAL x$+w-1);AT q,w;" ";AT q,w-1;" "
540 GO TO 170
9000 POKE USR "a"+1,BIN 00000000
9010 POKE USR "a"+2,BIN 00000000
9020 POKE USR "a"+3,BIN 00011100
9030 POKE USR "a"+4,BIN 00100010
9040 POKE USR "a"+5,BIN 00100010
9050 POKE USR "a"+6,BIN 00011100
9060 POKE USR "a"+7,BIN 00000000
9070 POKE USR "a"+8,BIN 00000000
9080 RETURN
9090 SAVE "geom" LINE 1

```


Bewarehouse 48K £5.95

Positive Image, 7 James St, Brigton, Glasgow

An enjoyable game which you'll want to play again and again. Bewarehouse plays a tune when loaded, with Welcome flashing across the colourful loading screen. A ghost rushes across next screen top introducing the complete instructions.

The object is to get as many men as possible across the warehouse floor and up the ladder to safety. But the building is haunted and the ghosts don't like intruders, so they roll barrels and throw boxes at them — with more on each of the 12 levels. Ghosts appear at higher levels to

chase or obstruct intruders.

Your energy, shown screen top, is limited and drains away faster when you jump to catch the red pipe in order to avoid the barrels. At screen bottom are lives left out of five and current score. A satisfying "bop" noise accompanies being hit by a box, which moves from side to side when falling down towards you, and the figure revolves when hit by a barrel.

When no lives are left there is a Hall of Fame, offer of another game, instructions or quit. T.W.

instructions	80%
playability	80%
graphics	70%
value for money	65%

★ ★ ★

Jackpot 48K £5.50

Michael Horgan, Felix Hae, 22 Percy Rd, Isleworth

Only available through mail order, this fruit machine simulation in BASIC is similar to many listed in magazines. However, it saves time to have one on cassette if — like me — you're lazy and enjoy gambling with pretend money.

Some nice features — so often missed by programmers — are a redefined character set, sounds announcing loading started and music when complete. Unlike a real machine the symbols do not move down in sequence, but are completely random — so you can't cheat!

A very colourful loading

screen gives way to complete instructions spread over two screens, with the opportunity to ZX print the list of payouts. There are hold/cancel and gamble/collect facilities, full use of sound with a jackpot tune, nine skill levels, a 27 ways to win feature, entering of name, score rating comments and high score win. You start with £1.90 and take your chance!

Even though it's not unique, I found it fun and quite addictive. I lost all my cash in hand at one point and was told: "You're skint" — how true! T.W.

instructions	70%
playability	70%
graphics	60%
value for money	65%

★ ★ ★

Les Flics 48K £6.95

PSS, 452 Stoney Stanton Rd, Coventry CV6 5DE

One side of the cassette loads for keyboard and the other for Kempston Joystick. A printed instruction booklet is included. The game starts straightaway with a town plan with nine buildings, parks, two patrolling police cars and the pink creature ... with a tail

Les Flics, under ze commant ov Unspecteur Claudeau of ze Sureté, neu eggactly weut jew are eup tau — yew are geuing tew trah en steal a gem stone in hees care.

Also, Claudeau has Gendarme Kaolin (disguised as a chef), his trusty servant, to 'elp heem — so yew foel, yew 'ave neo chance ... or 'ave yew?

Go around the town, entering buildings whose interiors are platform games and pick up various items, find out what they do, and finally get the diamond — the Purple Puma.

Fast moving French police, hindered by the bungling Inspecteur Claudeau, generously allow you three attempts at controlling that pink creature — before failure leads to the East!

From the moment the French tune announces Game Loaded you need all your wits about you to navigate narrow roads, evade Les Flics and find how each item helps you on your colourful quest. T.W.

instructions	75%
playability	85%
graphics	80%
value for money	80%

★ ★ ★ ★

Quest for Eternity 48K £7.99

APS, No. 1, Golden Square, London W1R 3AB

This is an intelligence test to prove your suitability to become a Master of Eternity. You are deposited inside a non-functioning spaceship and left to find the bits to make it work, find a teleportal booth on a distant planet and return to the Chamber of Creation.

This is an all text adventure, written in BASIC, but surprisingly fast even so. It has a simple input interpreter, allowing two word verb-noun commands, and abbreviations for directions. The usual save to tape facilities are available. I must admit to not liking the colour scheme for the

screen, but perhaps that's just personal. The descriptions of locations, important in creating atmosphere, are quite effective.

Try as I may, I can't get this pesky spaceship to work! In fact, I can't even get my spacesuit on. I've pressed buttons, been suffocated, tried to open a packing case with the laser knife — all to no avail. I even tried to go to sleep but my Spectrum wouldn't let me!

If you like the idea of the plot, and you have a few hours to spend, this may be for you. D.M.

instructions	95%
playability	85%
graphics	N/A
value for money	65%

★ ★ ★

Invasion 48K £6.99

APS, No. 1, Golden Square, London W1R 3AB

"If you don't want an intellectually challenging strategic wargame, put the tape back on the shelf!" reads the blurb. A bit of an overstatement, I feel!

Basically this is a computer board game in which you command eight armies represented by tanks on a numbered grid. Your opponents appear from the north. You have the option to reinforce, move or decrease the strength of an army in each turn. Resources are limited by the number of cities you control. Having deployed your forces, you attack your

enemies and push them back. Deploy them well and you win, but over stretch yourself or fail to reinforce soon enough and...

The game is written in BASIC and is very slow in deciding what has happened during a battle. Unfortunately you see and hear nothing of it. Whilst the screen presentation is undeniably clever it just doesn't measure up to the competition from machine coded

games using sprites. Similarly, warlike sound effects would have livened the proceedings up.

D.M.

instructions	95%
playability	60%
graphics	75%
value for money	70%

★ ★ ★

Take your chances and have a gamble on these new games. They're a mixed bunch so you should find something to your taste

Hit the jackpot

How's your memory? This game will test your powers of logic and perception. Can you remember sequences of colours and notes? Try this, and you'll soon find out.

The game starts when the computer prints a square of a certain colour, and plays a note to go with it. You must then copy it. Each time, one more square is added to a maximum of 30 squares, which are displayed for you in rapid succession.

You can give yourself a pat on the back if you manage to remember all 30. Either you have a fantastic memory for colours and an excellent perception of sound — or else you've cheated.

How it works

- 10-70 set up variables and skill level
- 100-210 set up arrays a, b and c
- 300-360 draw game
- 400 start of main loop
- 500-560 computer plays
- 700-760 your turn to copy
- 800 end of main loop
- 1000-1060 computer checks for correct input, ends game if wrong
- 2000-2010 clear colours
- 7000-7100 instructions

Variables

- DIM a vertical position
- DIM b horizontal position
- DIM c ink colour
- a\$ title
- b\$ level
- skill skill level
- n main loop
- g mini loop
- f general purpose loop



Test your mental abilities in this brainstretching teaser, designed for you by HCW regular Andrew Bird. It's impossible — or is it?

CAN YOU ECHO YOUR COMPUTER'S THOUGHTS?

```

1 REM Kopycat By A.G.Bird.
5 POKE 23609,30: GO SUB 7000
10 DIM a(30): DIM b(30): DIM c(30)
20 LET a$="KOPYCAT BY A G BIRD": LET b$="LEVEL"
30 BORDER 0: PAPER 0: CLS
40 FOR f=7 TO 25: PRINT AT 0,f: PAPER RND*6+1: INK 9;a$(f-6): BEEP .02,f: NEXT
f
50 INPUT "Skill Level 1, 2, 3, 4 or 5 ? ";skill
60 IF skill<1 OR skill>5 THEN BEEP .5,0: GO TO 20
70 BORDER 7: PAPER 7: CLS
99 REM Set up arrays
100 FOR f=1 TO 6: LET a(f)=1: NEXT f
110 FOR f=7 TO 12: LET a(f)=5: NEXT f
120 FOR f=13 TO 18: LET a(f)=9: NEXT f
130 FOR f=19 TO 24: LET a(f)=13: NEXT f
140 FOR f=25 TO 30: LET a(f)=17: NEXT f
150 FOR f=1 TO 25 STEP 6: LET b(f)=4: NEXT f
160 FOR f=2 TO 26 STEP 6: LET b(f)=8: NEXT f
170 FOR f=3 TO 27 STEP 6: LET b(f)=12: NEXT f
    
```



```

180 FOR f=4 TO 28 STEP 6: LET b(f)=16: NEXT f
190 FOR f=5 TO 29 STEP 6: LET b(f)=20: NEXT f
200 FOR f=6 TO 30 STEP 6: LET b(f)=24: NEXT f
210 FOR f=1 TO 30: LET c(f)=INT (RND*(skill+1))+1: NEXT f
299 REM Draw game
300 FOR f=1 TO 19: PRINT AT f,1: INK f/4;a$(f): NEXT f
310 FOR f=12 TO 172 STEP 32: PLOT 28,f: DRAW 192,0: NEXT f
320 FOR f=28 TO 220 STEP 32: PLOT f,12: DRAW 0,160: NEXT f
330 FOR f=1 TO 2*skill+1 STEP 2: PRINT AT f,29: INK f/2;"■ "; INK 0;f/2+.5: NE
X
T f
340 FOR f=13 TO 17: PRINT AT f,29;b$(f-12): NEXT f
350 PRINT AT 19,29: INVERSE 1;skill
360 FOR f=1 TO 200: NEXT f
399 REM Main loop
400 FOR n=1 TO 30
410 GO SUB 2000
499 REM Computers loop
500 FOR g=1 TO n
510 PRINT AT a(g),b(g): INK c(g);"■";AT a(g)+1,b(g);"■";AT a(g)+2,b(g);"■
"
520 BEEP 1-(n/35),c(g)*3+5
530 NEXT g
540 FOR f=1 TO 200: NEXT f
550 GO SUB 2000
560 FOR f=1 TO 2: FOR h=0 TO 6: PRINT AT 21,3: INK h: PAPER 6-h/2;" Y O U R
G O N O W ": NEXT h: NEXT f
699 REM loop for your go
700 FOR g=1 TO n
710 IF INKEY$="" THEN GO TO 710
720 GO SUB 1000
730 PRINT AT a(g),b(g): INK c(g);"■";AT a(g)+1,b(g);"■";AT a(g)+2,b(g);"■
"
740 BEEP .5,c(g)*3+5
750 NEXT g
760 FOR f=1 TO 200: NEXT f
900 NEXT n
999 REM Computer checks input
1000 PRINT AT 21,3;" "
1010 IF PEEK 23560=48+c(g) THEN RETURN
1020 FOR f=0 TO 7: BORDER f: BEEP .1,30-f*7: BEEP .1,40-f*7: NEXT f
1030 PRINT AT 21,0: INK 2: FLASH 1;" W R O N G " BEEP 5,-4
0
1040 BORDER 5: PAPER 5: CLS : PRINT AT 8,3;"Y O U R S C O R E O N";AT 11,5;"
S K I L L L E V E L";AT 14,9;skill;" W A S "; PAPER 6;n-1
1050 PRINT AT 21,3;"P R E S S A N Y K E Y."
1060 PAUSE 0: GO TO 10
1999 REM Clear screen routine
2000 FOR f=1 TO n: PRINT AT a(f),b(f);" ";AT a(f)+1,b(f);" ";AT a(f)+2,b(f);
" "; NEXT f
2010 RETURN
6999 REM Instructions
7000 BORDER 4: PAPER 4: INK 0: CLS
7010 PRINT "THE IDEA OF THIS GAME IS TO COPY""THE SEQUENCE OF COLOURS SHOWN TO
""YOU BY THE COMPUTER.THIS IS DONE""BY PRESSING THE APPROPRIATE KEYS""WHEN
IT IS YOUR GO."
7020 FOR f=1 TO 600: NEXT f
7030 FOR f=10 TO 21: PRINT AT f,5: PAPER 0;" " : NEXT f: REM
(21 spaces)
7040 PRINT AT 11,6: PAPER 0: INK 6;"ZX Spectrum";AT 12,5;" "
7050 FOR f=2 TO 12 STEP 2: PRINT AT 14,f+4: PAPER f/2: INK 9;f/2: BEEP .5,f*2: N
EXT f
7060 FOR f=18 TO 24 STEP 2: PRINT AT 14,f: PAPER 1;" " : NEXT f
7070 FOR f=7 TO 23 STEP 2: PRINT AT 16,f: PAPER 1;" ";AT 18,f+1;" ";AT 20,f;" " :
NEXT f
7080 PRINT AT 20,6: PAPER 1;" ";AT 20,24;" "
7090 FOR f=1 TO 5: FOR g=-30 TO 30 STEP 5: BEEP .01,g+f: NEXT g: NEXT f
7100 PRINT AT 12,28;"HIT";AT 14,28;"ANY";AT 16,28;"KEY": PAUSE 0: RETURN

```


SOLID GOLD

Factory Breakout **48K £5.50**

Poppy Soft, The Cross, Common, Rd, Headley, Newbury Berks

A fascinating game of skill and speed which exploits all the programmer's skills in graphics, use of colour, sound and animation.

Screen top has score, levels alpha to epsilon and lives left out of three. On screen one Zirky, the robot egg-capsule, is surrounded by the self-destruct micron rays. Only you can rotate him, shooting them with a short range laser until an energy column reaches him from below and transports him to screen two on a conveyor belt. Here Zirky must cross the perilous rejection line — now out of control —

where five auto inspectors try to squash him, while a canary flies up to kill him.

He enters the lift room, where green lifts are ready to suck him up to any level he wants. He must visit all six levels, fall through 12 doors, changing their colour to red, then blue — which obliterates them — and evading alien monsters. Zirky can open four force fields on the levels to help him obliterate them.

Zirky then has to discover the factory key to reach the last screen — which is more than I have done! **T.W.**

instructions	100%
playability	100%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

Sam Safety **48K £7.95**

APS, No. 1, Golden Square, London W1R 3AB

In this package from Computertutor, their resident character, Clever Clogs, invites you to learn the rules of road safety whilst playing a sort of maze game.

The maze is a series of inter-linked, well illustrated streets with all the features you would expect, cars, crossings, subways and so on. Using the cursor keys, you direct Sam on his journey. You must look left and right, using defined keys to cross safely. Every now and then a prize appears in the street. You must walk Sam up to it and identify a road sign to amass

points. Complete the journey and your ZX printer presents you with a certificate!

Perhaps the best feature is the ability to design your own map and name the streets after ones in your locality. This, together with the facility to alter the level of difficulty, makes it easy to tailor the program to the needs and interests of any child.

A well designed and executed program, with interesting graphics and sound, which combines fun and purposeful learning. **D.M.**

instructions	100%
playability	100%
graphics	95%
value for money	90%

★ ★ ★ ★ ★

Bismark **48K £6.99**

APS, No. 1, Golden Square, London W1R 3AB

With weather worsening, you leave behind the wreck of HMS Hood and, with a huge and powerful fleet of battle groups, your aim is to find and destroy the Bismark before she reaches the convoy routes.

Complete instructions appear after the program has loaded, with the game starting at 0600 hours on 24th May — each turn represents six hours. You have 13 turns to find and destroy the battleship before your forces must return home to refuel. Bismark has strength 30 while your total strength is 179.

The search takes place on a

grid with ships' positions listed by co-ordinates. Each turn you give movement orders to 12 naval groups — one moves 3, the others 2. Then you'll be told if your groups have sighted the Bismark. In fair and good weather you'll be asked if you wish to fly airstrikes, which, if they locate her, will attack.

Forces in the same area can attack her, and if stronger will win. Bismark fires first and combat can last an unlimited number of rounds, until she is sunk or you quit. A score up to 100 is given at the end. **T.W.**

instructions	80%
playability	75%
graphics	40%
value for money	75%

★ ★ ★ ★

Kosmic Kanga **48K £5.95**

Micromania, 14 Lower Hill Road, Epsom, Surrey KT19 8LT

This colourful, multiscreen, arcade standard game kept two young visitors in stitches for a whole evening as they tried to get Kosmic Kanga through 11 screens to his spaceship, to allow him to return to his home planet.

Compatible with AGF, Protek, Kempston and Interface 2 joystick interfaces, this program makes full use of all the potential of the Spectrum. Use of colour and sound is excellent and the animated graphics are superb.

The options screen leads on to the Airport, where Kanga bounces his way over buildings,

clouds, bombs, fire engines, birds and aeroplanes, collecting treasure and points as he moves. The last four items are deadly but can be removed by Kanga throwing boxing gloves at them.

He visits the desert, ocean, Atlantis, the beach, country, city and three platform games, before going to the Moon and finally his ship.

You have four lives, shown at screen bottom with your score and top score. Bonus points are added for each screen completed and key response is very good. **T.W.**

instructions	70%
playability	85%
graphics	90%
value for money	90%

★ ★ ★ ★

Automania **48K £6.95**

Mikro-Gen, 44 The Broadway, Bracknell, Berks

Sub-titled Manic Mechanic, this is a must for all games players. A musical tune and comic cast list — decorating by Polly Filler and R Tex — introduce this whacky game. In his flat cap, oversize boots and with a beer belly, Wally Week with three lives has to get car parts from a store and build 10 cars.

The menu offers music on/off (thanks!), demo mode, redefine keys and choice of Sinclair and Kempston interfaces. The game starts in the assembly room with tyres rolling round and car parts dropping from overhead conveyor belts.

Assuming Wally jumps the

tyres he moves into the store room, climbs ladders to collect the six pieces from various platforms which are none too safe and have gaps requiring jumping. Each new car has its parts coloured differently in a different store room and pieces must be placed in the correct positions on the cars in the assembly room.

Being a wally, tools and oil cans are dropped in his way.

Mikro-Gen will pay £100 for the highest score each month — so invest in this colourful game with superb graphics and animation. **T.W.**

instructions	100%
playability	100%
graphics	100%
value for money	100%

★ ★ ★ ★ ★

Rave reviews greet this cluster of new releases. Will you find the reviewers' enthusiasm catching?